

**Amendment and Response**

Page 2 of 16

Serial No.: 09/834,110

Confirmation No.: 5306

Filed: 12 April 2001

For: TREATMENT OF DISORDERS BY IMPLANTING STEM CELLS AND/OR PROGENY THEREOF INTO GASTROINTESTINAL ORGANS

---

20. [AMENDED] The method of claim 19 wherein the cells thereof are derived from embryonic neural tissue, adult neural tissue, or combinations thereof.
21. [NEW] A method of repopulating neurons, muscles, or other tissues within a gastrointestinal organ of a subject comprising implanting stem cells, progeny thereof, or combinations thereof into the gastrointestinal organ of the subject.
22. [NEW] The method of claim 21 wherein the stem cells are selected from the group consisting of multipotent stem cells, pluripotent stem cells, totipotent stem cells, and combinations thereof.
23. [NEW] The method of claim 21 wherein the stem cells are neural stem cells.
24. [NEW] The method of claim 23 wherein the neural stem cells are derived from embryonic neural tissue, adult neural tissue, or combinations thereof.
25. [NEW] The method of claim 21 wherein the implanted cells repopulate neurons.
26. [NEW] The method of claim 25 wherein the subject suffers from a disorder of the enteric nervous system.
27. [NEW] The method of claim 26 wherein said disorder of the enteric nervous system is selected from the group consisting of achalasia, Hirschsprung's disease, congenital pyloric stenosis, reflux disease, irritable bowel syndrome, and intestinal pseudo-obstruction.

28. [NEW] The method of claim 21 wherein the gastrointestinal organ comprises a solid organ.
29. [NEW] The method of claim 28 wherein the solid gastrointestinal organ is the liver, the gall bladder, or the pancreas.
30. [NEW] The method of claim 21 wherein the gastrointestinal organ comprises a hollow organ.
31. [NEW] The method of claim 30 wherein the hollow gastrointestinal organ is the mouth, the esophagus, the stomach, or the bowels.
32. [NEW] The method of claim 21 wherein implanting cells into a gastrointestinal organ of a subject comprises administering the cells locally.
33. [NEW] The method of claim 32 wherein administering cells locally comprises injecting the cells into a wall of the gastrointestinal tract.
34. [NEW] A method of repopulating neurons within the gastrointestinal tract of a subject comprising implanting neural stem cells, progeny thereof, or combinations thereof into the gastrointestinal tract of the subject.
35. [NEW] A method of providing a neurotransmitter within the gastrointestinal tract of a subject comprising implanting neural stem cells, progeny thereof, or combinations thereof into the gastrointestinal tract of the subject.
36. [NEW] The method of claim 35 wherein the neurotransmitter is nitric oxide.

**Amendment and Response**

Page 4 of 16

Serial No.: 09/834,110

Confirmation No.: 5306

Filed: 12 April 2001

For: TREATMENT OF DISORDERS BY IMPLANTING STEM CELLS AND/OR PROGENY THEREOF INTO GASTROINTESTINAL ORGANS

---

37. [NEW] The method of claim 35 wherein the neurotransmitter is substance P.
38. [NEW] A method of producing nitrinergic neurons in a subject comprising implanting neural stem cells into the smooth muscle of the gastrointestinal tract of the subject.
39. [NEW] The method of claim 38 wherein the neural stem cells are implanted into the pylorus.
40. [NEW] The method of claim 38 wherein the neural stem cells are implanted into the duodenum.
41. [NEW] A method of treating a disorder of the enteric nervous system in a subject comprising implanting neural stem cells, progeny thereof, or combinations thereof into a gastrointestinal organ of the subject.
42. [NEW] The method of claim 41 wherein the implanted cells produce nitric oxide.
43. [NEW] The method of claim 41 wherein the cells are implanted into the pylorus.